

I have carried W along with M&K in the field for the past two seasons to test the usefulness of the former, and I have generally found W's keys useful, but at times ambiguous. The most frequent problem with W's keys is the improper simplification of morphological terminology. There are few errors, and only one glaring misspelling.

From this field comparison, and making the calculations below, I would say that W deserves a place in the botanist's backpack if weight is costly. One is most likely to go astray with W's keys when botanizing near the lower boundaries of his stated elevational ranges: numerous species common within his limits are not keyed. If we take P to be the probability of keying an unknown,  $P_r$  being a correct determination and  $P_w$  an incorrect determination, and if we assume  $P = .95$  for M&K and  $P = .65$  for W (my estimate !), then  $P_r \text{ gram}^{-1}$  for M&K is .0006, and  $P_r \text{ gram}^{-1}$  for W is .0023. Clearly, then, W wins on a weight basis if determination error is tolerable. However,  $P_w \text{ gram}^{-1}$  for W is .0012, compared to  $P_w \text{ gram}^{-1}$  for M&K of .0003, so that M&K is more exactly accurate on a weight basis.

Botanists do tire from lugging around heavy books in the field, and we do need accurate field guides to introduce the objects of field botany to the people. Weber's *Rocky Mountain Flora* is exemplary in this regard ( $P_r \text{ gram}^{-1} = .0016$ ;  $P_w \text{ gram}^{-1} = .0001$  !). Weeden's book does not quite approach this ideal, but it does serve a distinct need. — DEAN WM. TAYLOR, Department of Botany, University of California, Davis 95616.

*Vascular Plants of the Nevada Test Site and Central-Southern Nevada: ecological and geographical distributions.* By JANICE C. BEATLEY. 1976. vii + 308, 28 figs. Technical Information Center, U. S. Energy Research and Development Administration, Springfield, Virginia 22161. \$9.75. ISBN 0-87079-033-1.

Inaccessible botany is often the product of the distance which botanists are able to travel in their mostly random wanderings during vacations. In the case of the area covered by this floristic volume, long distances from major botanical centers and governmental access restrictions have conspired to make the flora of the 5100 km<sup>2</sup> of the Nevada Test Site and vicinity poorly known. Janice Beatley, assisted in the field at times by several other botanists, has amassed a significant number of collections (25000) in the past fifteen years, and has produced several previous plant checklists for the area. Culminating this effort is the release of this much-needed and reasonably priced book.

The area covered lies on the phytogeographically important transition zone between the Sonoran and Great Basin floristic regions. An introduction presents the background on the previous lack of floristic work in the area. Maps giving the physiographic and political features of the area comprise the first 3 figs., and the fourth gives a generalized vegetation map. Unfortunately, several of the categories in the legend to the latter map are nearly indistinguishable due to poor reproduction. Figs. 5–28 are well chosen photographs of plant habitats.

The bulk of the book is divided into 2 parts: 1) Desert Environment and Vegetation (66 pp.); and 2) Vascular Plants (190 pp.). The first part presents a detailed description of the habitat types in southern Nevada, and is perhaps our most comprehensive description of such to date. Numerous site data are reviewed, including climatic and soil parameters. Kinds of vegetation of the area are discussed in a semi-hierarchical classification: Mojave, Transition and Great Basin deserts subdivided into kinds of sites (bajadas, mountains, arroyos, springs) or plant associations, the latter being typified by phytosociologically uninformative 'genus-genus' or 'genus-common name' epithets. The second part is a catalogue of the flora arranged alphabetically, listing 1093 taxa, describing habitat, local range, and phenology. Keys and descriptions of the taxa are not given. The author justifies this omission by stating that these identification tools "are (or will be) available for nearly all of the taxa in the various floras of adjacent areas." This omission is unfortunate. Keys in

local floras can be more useful than those of the regional manuals in that they simply involve fewer choices, and are often the product of extensive field experiences with the plants in hand.

Following are additional statistics on the flora which might be needed by users of this book. The largest 10 families are (native taxa only): Asteraceae (17.4%), Poaceae (6.8), Polygonaceae (5.8), Fabaceae (5.5), Brassicaceae (4.9), Polemoniaceae (4.8), Scrophulariaceae (4.2), Boraginaceae (3.8), Onagraceae (3.5), Chenopodiaceae (3.4). Of the 125 introductions, 28.8% are Poaceae, and the remainder: Asteraceae (14.4%), Brassicaceae (10.4), Farabaeae and Chenopodiaceae (5.6), Tamaricaceae and Polygonaceae (3.2). A Life Form Spectrum for native taxa is: Phanerophytes (2.9%), Chamaephytes (16.7), Hemicryptophytes (34.4), Geophytes (11.8), Therophytes (31.4), Eiphytes (0.4), Succulents (2.1). Half of the introductions are therophytes, and a fourth are hemicryptophytes.

The layout of the book is of adequate utility, and is mostly free of printing error. However, taxa are not numbered in the catalogue of plants.

All factors considered, the book appears to this reviewer to be a good contestant in the scramble competition for personal and university library dollars. — DEAN WM. TAYLOR, Department of Botany, University of California, Davis 95616.

*The Story of Pines.* By NICHOLAS T. MIROV and JEAN HASBROUCK. xi + 148 pp., including colored frontispiece, forty halftones, five line drawings and one map. Indiana University Press, Bloomington, Indiana. 1976. \$7.95.

If one chose to write a book for the layman about a single group of plants, what could be more appropriate than a genus containing the oldest known living "higher" plant, the bristlecone pine? But not only are some pine individuals long-lived, the group also has a long geological history. The chapter, "The First 200 Million Years" discusses pines from the Jurassic to the present.

Dr. Mirov has worked with and loved pines for more than fifty years. Readers may imagine themselves chatting with the Mirovs in the study or in front of their fireplace, and hearing, in simple language, about fragrance of pines (one of Dr. Mirov's favorite subjects) — why one species exudes a different fragrance than another; or the legend of how the Black Sea *Pinus pityusa* was named for the Greek wood nymph Pitys; or reminiscences on how geneticists developed the science of breeding pines, a science which had its beginning in 1925 at the Eddy Tree Breeding Station in Placerville, California (now the Institute of Forest Genetics). The chapter on the Pine Forest includes discussion of the ecosystem of which the forest is a part, and also takes up the importance of fire to pines, "Fire never exterminated a pine forest; only climate can do that." [that is if man's activities are excluded].

There is all this "and much much more" — structure, physiology, economic importance, natural distribution of pines in the northern hemisphere and their successful introduction into parts of the southern — all in a welcome, readable style. Aspects of pines that still require research are touched upon and these may intrigue the scientists who pick up this volume.

Anyone who feels the exhilaration of being among pines, whether they be on a coastal plain, on a mountain peak, or in the foothills between, will enjoy this book and will undoubtedly look upon pines with a deepened understanding. — ANNETTA CARTER, Herbarium, Department of Botany, University of California, Berkeley 94720.

*Dalea Imagines, an illustrated revision of Errazurizia Philippi, Psorothamus Rydberg, Marina Liebmann, and Dalea Lucanus emend. Barneby, including all species of Leguminosae tribe Amorphaeae ever referred to Dalea.* By RUPERT C. BARNEBY. 891 pp., including 142 plates drawn by the author. *Memoirs of the New York Botanical Garden*, vol. 27. 1977. \$50.00 (paperbound!).